**IN THE CLAIMS:**

1. (Previously Presented) A system for providing high frequency data communications in a satellite-based communications network, the system comprising:

a plurality of communications satellites each having uplink and downlink antennas capable of receiving and transmitting a plurality of signals, each of said satellites having a communication control circuit;

at least one of said satellites being a reconfigurable satellite having a programmable frequency synthesizer coupled to an up converter and a down converter of a communications control circuit;

a routing table storing tuning information therein;

a controller located on said satellite coupled to said communications control circuit, said controller controlling a frequency reconfiguration of said communications control circuit through said programmable frequency synthesizer in response to said tuning information.

2. (Original) A system as recited in claim 1 wherein each of said satellites further comprising a beam forming network coupled to said uplink and downlink antennas.

3. (Original) A system as recited in claim 1 wherein said communications control circuit comprises an up converter and a down converter.

4. (Original) A system as recited in claim 1 wherein said communications control circuit comprises a transponder.

5. (Original) A system as recited in claim 4 wherein said transponder comprises an up converter and a down converter.

6. (Original) A system as recited in claim 1 wherein said communications control circuit comprises a time division multiple access switch.

7. (Original) A system as recited in claim 1 wherein said communications control circuit comprises a packet switch.

8. (Original) A system as recited in claim 1 wherein said plurality of communications satellites have an orbit selected from the group consisting of a LEO, MEO and GSO.

9-10. (Canceled)

11. (Previously Presented) A payload circuit as recited in claim 15 wherein said communications control circuit comprises a transponder.

12. (Previously Presented) A payload circuit as recited in claim 11 wherein said transponder comprises the up converter and the down converter.

13-14. (Canceled)

15. (Previously Presented) A payload circuit for a satellite comprising:
a receive array;
a receive beam forming network;
a transmit array;
a transmit beam forming network;

a communications control circuit for controlling communications of said satellite, said communications control circuit being an up converter and a down converter; and

a reconfiguration circuit coupled to the communications control circuit for reconfiguring the communications control circuit, said reconfiguration circuit comprising a programmable frequency synthesizer coupled to the up converter and down converter, an on-board computer and a routing table having tuning information stored therein, said on-board computer controlling a reconfiguration of said communications control circuit through said programmable frequency synthesizer in response to said tuning information.

16. (Previously Presented) A payload circuit as recited in claim 15 wherein said communications control circuit comprises a time division multiple access switch.

17. (Previously Presented) A payload circuit as recited in claim 15 wherein said communications control circuit comprises a packet switch.

18. (Previously Presented) A method of configuring a satellite system having a plurality of satellites comprising the steps of:

deploying a reconfigurable satellite;

transmitting reconfiguration instructions to said satellite;

reconfiguring the frequency configuration of the payload of the reconfigurable satellite in response to the tuning information in a routing table by changing an up converter frequency and down converter frequency using a programmable frequency synthesizer;

repositioning a satellite from a network position; and

moving the reconfigurable satellite into the network position.

19-20. (Canceled)

21. (Original) A method as recited in claim 18 wherein the step of reconfiguring a satellite comprises changing the amplitude or phase coefficients of a transmit and receive beam.

22. (Previously Presented) A method as recited in claim 18 further comprising storing tuning information in a routing table.

23. (Currently Amended) A method as recited in claim [[23]] 18 wherein the step of reconfiguring the payload comprises changing the amplitude or phase coefficients of a beam in response to the tuning information in the routing table.

24. (Previously Presented) A method as recited in claim 18 wherein moving the reconfigurable satellite is performed using east/west station keeping.

25. (Previously Presented) A method as recited in claim 18 wherein moving the reconfigurable satellite is performed using north/south station keeping.

26. (Previously Presented) A method as recited in claim 18 further comprising updating the routing table from an order wire.

27. (Previously Presented) A method as recited in claim 18 further comprising updating the routing table from an RF control channel.

28. (Previously Presented) A method of configuring a satellite comprising:
deploying a reconfigurable satellite;
storing frequency tuning information in a routing table;
transmitting reconfiguration instructions to said satellite;

reconfiguring the frequency configuration of the payload of the reconfigurable satellite in response to the tuning information in the routing table by changing an up converter frequency and down converter frequency using a programmable frequency synthesizer.

29. (Previously Presented) A method as recited in claim 28 wherein the step of reconfiguring the payload comprises changing the amplitude or phase coefficients of a beam in response to the tuning information in the routing table.

30. (Previously Presented) A method as recited in claim 28 further comprising updating the routing table from an order wire.

31. (Previously Presented) A method as recited in claim 28 further comprising updating the routing table from an RF control channel.